

REMARKS

Responsive to the Office Action of June 21, 2002, applicant has amended claim 1, the only independent claim, to more fully define applicant's invention and to more clearly distinguish over the prior art. First, applicant has further defined the light weight aggregate as a "lightweight mineral aggregate" in order to exclude the "fiber/floc entanglements" described by Adamowicz which the Examiner asserts to be a light weight aggregate. Second, applicant has revised the definition of the binder in Claim 1 so that the binder is defined as "consisting essentially of a reactive water-soluble polymer binder and optionally starch." The effect of this amendment is to replace the open-ended term "comprising" with the more restrictive term "consisting essentially of" in order to exclude from applicant's binder the specialized fluoride-containing material, namely a lithium and/or sodium water-swelling mica that is essential to the binder described by Adamowicz. Finally, applicant has amended claim 8 to more specifically define the retention aid, namely to require that the retention aid "promotes the aggregation of the water-soluble binder." This makes clear that a thickener would not provide the required aggregation of the water-soluble binder. Applicant respectfully requests reconsideration of all grounds of rejection in view of these amendments.

It is submitted that none of the amendments involve new matter. One of the major components of applicant's composition is expanded perlite, a well-known mineral that is described in applicant's specification beginning at page 10 line 14. Applicant's specification explains, beginning at page 5, line 17, that the

purpose of the invention is to replace the conventional starch binders with a wet-strength resin as the binder. The wet strength binders are the "reactive water-soluble polymer binders" set forth in the claims and further defined beginning at page 7, line 9. These water-soluble binders are the main binder for the composition, although a small amount of starch may be used (See TABLE 1, Page 7). With respect to claim 8, the purpose and function of the retention aids is described beginning at page 9, line 16. The stated purpose of the retention aid is to "form an agglomerate with the cationic wet strength resin" to avoid loss of the water-soluble binder during the dewatering step of the water felting process. Accordingly it is submitted that these amendments are proper and their entry is requested.

On page 2 of the Office Action, the Examiner finally rejected all claims as being obvious under 35 USC § 103 based on US Patent 4,549,931 to Adamowicz et al in view of the Fisher paper entitled "Structure and Wet Strength Activity of Polyaminoamide-Epichlorohydrin Resins having Azetidinium Functionality" published by Henkel, US Patent 5,911,818 to Baig and US Patent 5,395,571 to Symons.

The principal reference cited in the Office Action, Adamowicz et al patent, is directed to Inorganic Binders for Articles formed from Fibers that may be used to form various fiber-containing products such as acoustical ceiling tile. Adamowicz et al states that "the inventive binder system demands the presence of two basic materials" namely (a) a lithium and/or sodium water-swelling mica and (b) a source of organic polycations (See Col. 5, lines 44-53).

The first basic material required in the Adamowicz et al binder is a specialized fluoride-containing material, namely a lithium and/or sodium water-swelling mica that is excluded from applicant's claims, as amended.

Applicant's composition contains no component that corresponds to the specialized fluoride-containing lithium and/or sodium water-swelling mica required by Adamowicz et al. Moreover, there is no suggestion in Adamowicz or any of the secondary references that removing the specialized fluoride-containing mineral would produce a ceiling tile composition having improved drying characteristics. Accordingly it is clear that Adamowicz et al does not make applicant's claims obvious.

Moreover, all of applicant's claims require the presence of a lightweight mineral aggregate, i.e. expanded perlite, that provides bulk, but that does not function as a binder component. Although Adamowicz refers to "fiber/floc agglomerates" at Col. 7 line 17 that are formed in the process of preparing the first basic binder material. Such agglomerates are excluded from the binders defined by applicant's claims. Moreover, Adamowicz does not suggest the agglomerates are light in weight. Adamowicz fails to suggest using a lightweight aggregate such as perlite to provide bulk, but not function as a binder. This is another reason why Adamowicz et al fails to make applicant's claims obvious.

The Examiner cites the Symons reference to show that CMC is a well-known thickening agent that the Examiner asserts can be used as a retention aid (applicant's claims 8 – 10 require the presence of a retention aid). Claim 8 has been amended to further define the function of the retention aid as "a retention aid

that promotes aggregation of said water soluble binder. This is deemed major improvement to applicant's invention that is defined as "a composition for making acoustical tile in a water-felting process" wherein the principal binder is defined as "water-soluble,"

The Symons patent is directed to a composition for a foamed building board consisting primarily of calcium hemihydrate (i.e., stucco), a thermosetting resin, foam and other minor ingredients. Symons uses ~~or~~ sodium carboxymethyl cellulose as a retarder in this setting composition. Symons does not cite the use of the sodium carboxymethyl cellulose as a thickener or as a retention aid because in Symons's system there is no dewatering taking place. Additionally, thickening of the furnish as might be caused by the use of high levels of sodium carboxymethyl cellulose, is to be highly avoided in a water-felting process such as claimed by applicant. Thickening directly inhibits the ability of the slurry to dewater. Thus, the Symons patent, 5,395,571 is directed to a method of making a building board that appears to be totally unrelated to applicant's invention. Clearly Symons does not suggest that the specialized fluoride mineral component taught to be essential by Adamowicz et al should be removed from the binder system or that removal of the specialized fluoride mineral component would lead to a ceiling tile having improved drying characteristics.

It is submitted that Adamowicz et al when taken with the secondary references fails to make obvious any of applicant's claims, as amended. The first "basic material" demanded for the Adamowicz et al binder is a specialized fluoride mineral component that is excluded from the binder defined by applicant's claims

as amended. The combination of the secondary references cited by the Examiner with Adamowicz et al does not overcome this deficiency in Adamowicz et al. Certainly none of the secondary references suggests that the specialized fluoride mineral component required by Adamowicz et al should be removed from the binder system or that removal of the specialized fluoride mineral component would lead to a ceiling tile having improved drying characteristics. Further, none of the secondary references suggests that the specialized fluoride mineral component taught to be essential by Adamowicz et al should be replaced by perlite as required by applicant's claims. Accordingly it is clear that the cited prior art fails to make obvious any of applicant's claims.

It is submitted that all of the claims in issue are patentable over the prior art. Reconsideration of all grounds of rejection is respectfully requested in the light of the foregoing remarks and an early Notice of Allowance is solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Donald E. Egan", is written over a horizontal line.

Donald E. Egan
Registration No. 19,691
273 Stonegate Road
Clarendon Hills, Illinois 60514
(630) 920-8440

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Amended Claims 1 & 8 – Marked-up copy

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~~2.~~ (AMENDED) A composition suitable for making acoustical tiles in a water-felting process, said composition comprising a lightweight mineral aggregate, cellulosic fiber, a [reactive water-soluble polymer] binder and, optionally, mineral wool, said binder consisting essentially of a reactive water-soluble polymer binder and optionally, starch.

8. (AMENDED) The composition described in claim 1, comprising retention aid that promotes aggregation of said water soluble binder.